



Morphogenetic and structural characteristics of *Brachiaria brizantha* cv. Marandu subjected to levels of shading

Claudio R. TOWNSEND^{1*}, Leilane O. SANTOS², Ana K. SALMAN³

¹Embrapa Clima Temperado, CP 403, 96010-971, Pelotas, RS, Brazil, ²Universidade Federal de Lavras, Brazil; ³Embrapa Rondônia, CP 127, 76815-800, Porto Velho, RO, Brazil.

E-mail address of presenting author*: claudio.townsend@embrapa.br

Introtuction

The integrated crop-livestock-forest systems (iCLF) through the arrangement of its components generate different medium conditions and thus interfere with the supply of biotic and abiotic factors, among which solar radiation, is essential to the development and growth of plants, this so it is necessary to know the response of forage front of oscillation of this factor.

Material and Methods

To evaluate the response of *B. brizantha* (*Urochloa brizantha*) cv. Marandu to three shading levels (0, 20 and 50%), an experiment was conducted at Embrapa Rondônia in Porto Velho-Brazil; in randomized complete block design with replications, three blocks and five replications. The dynamics of leaf development followed the methodology of marked tillers, if conducting weekly evaluations, for 36 days elapsed from the beginning of September and early October 2011, when the determined condition of the leaves (expanding, expanded in senescence and senesced), and told, we measured the length of leaf blade and heights sheath and tiller. From this information we determine the morphogenetic traits: rates the of leaves expansion (LER-cm of laef.tiller⁻¹.GD⁻¹), senescence (LRS-cm of laef.tiller⁻¹.GD⁻¹) and appearance (LAR-laef.tiller⁻¹.GD⁻¹), phyllochron (PHILO-GD.laef⁻¹.tiller⁻¹), leaf lifespan (LLS-GD.laef⁻¹.tiller⁻¹) and rate of stem elongation (RSE-cm of stem.tiller⁻¹.GD⁻¹); as well as structural characteristics: total amount (TL-n° laves.tiller⁻¹) and green leaves (GL-n° laves.tiller⁻¹), leaf blade length (LBL-cm.laef⁻¹) and height of tillers (HT-cm.tiller⁻¹). The means were submitted to analysis of variance and compared by Tukey test (P 0.05%), and regression analysis.

Results and Conclusions

The LER, RSE and LLS were influenced by shading, with the highest values observed under high shading towards more levels, and responded to that factor as models (P ≤ 0.05): LER = 0.071 + 0.002 x (R² = 79); RSE = 0.047 + 0.0018 x (R² = 72) and LLS = 1.271 + 8.969 x (R² = 67). The more morphogenetic traits were not affected and neither responded to restriction levels of solar radiation. The behavior of these characteristics acted on the structural attributes determined by the same, being detected effect of shading on TL, GL, LBL and HT, with the highest values observed under high shading and the smallest full sun, with responses given by the models (P ≤ 0.05): GL = 4.7 + 0.0314 x (R² = 75); LBL = 23.5 + 0.272 (R² = 87) and HT = 40.5 + 0.875 x (R² = 89). Demonstrating that the grass assumed adaptation strategies the condition of the shaded, what gives *B. brizantha* cv. Marandu potential for use in silvopastoral and integrated crop-livestock-forest systems. Demonstrating that the grass assumed adaptation strategies the condition of the shaded, which seek maximize interception and absorption of solar radiation, through the allocation and arrangement of their photosynthetic apparatus (f.e. increasing the height of tillers and leaf length), and increasing the photosynthetic tissue (f.e. maintaining a higher amount of green leaves). What gives the Marandu grass potential for use in iCLF.

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